Proposed Action. Its emplacement at Yucca Mountain would require legislative action by Congress unless a second licensed repository was in operation.

There were several reasons to evaluate the potential for disposing of Greater-Than-Class-C waste and Special-Performance-Assessment-Required waste at Yucca Mountain as reasonably foreseeable actions. First, because both materials exceed Class C limits for specific radionuclide concentrations as defined in 10 CFR Part 61, they are generally unsuitable for near-surface disposal. Second, the U.S. Nuclear Regulatory Commission specifies in 10 CFR 61.55(a)(2)(iv) the disposal of Greater-Than-Class-C waste in a repository unless the Commission approved of disposal elsewhere. Finally, during the scoping process for this environmental impact statement (EIS), several commenters requested that DOE evaluate the disposal of other radioactive waste types that might require isolation in a repository. The disposal of Greater-Than-Class-C and Special-Performance-Assessment-Required wastes at the proposed Yucca Mountain Repository could require a determination by the Nuclear Regulatory Commission that these wastes require permanent isolation. In addition to spent nuclear fuel, high-level radioactive waste, surplus plutonium, Greater-Than-Class-C waste, and Special-Performance-Assessment-Required waste (materials such as depleted uranium), other radioactive wastes could be considered in the future for disposal in the Yucca Mountain Repository.

By analyzing the emplacement of Inventory Module 1 or 2, DOE is not stating that the emplacement of materials beyond those prescribed for the Proposed Action would occur. Rather, the Department is being prudent in analyzing a reasonably foreseeable action that could take place. If a future decision was made to emplace additional material included in the Inventory Modules, the Department would ensure that appropriate National Environmental Policy Act reviews were performed.

In general, the analysis of cumulative impacts in this chapter follows the process recommended in the Council on Environmental Quality's handbook *Considering Cumulative Effects Under the National Environmental Policy Act* (DIRS 103162-CEQ 1997, all). This process includes the identification, through research and consultations, of Federal, non-Federal, and private actions with possible effects that would be coincident with those of the Proposed Action on resources, ecosystems, and human communities. Coincident effects would be possible if the geographic and time boundaries for the effects of the Proposed Action and past, present, and reasonably foreseeable future actions overlapped. Using the methods and criteria described in Chapters 4, 5, and 6 of this EIS and their supporting appendixes, DOE assessed the potential cumulative impacts of coincident effects.

This chapter has six sections. Section 8.1 identifies and analyzes past, present, and reasonably foreseeable future actions with impacts that could combine with impacts of the Proposed Action. Sections 8.2 and 8.3 present the analyses of cumulative short-term (the period before the completion of repository closure) and long-term (the first 10,000 and first 1 million years following closure) impacts, respectively, in the proposed Yucca Mountain Repository region. Section 8.4 describes cumulative transportation impacts, nationally and in Nevada. Section 8.5 addresses cumulative impacts associated with the manufacturing of repository components. Section 8.6 presents an overall summary of potential cumulative impacts by discipline area.

8.1 Past, Present, and Reasonably Foreseeable Future Actions

This section identifies past, present, and reasonably foreseeable future actions with impacts that could combine with impacts of the Proposed Action. It describes these actions and their relationships to the Proposed Action that could result in cumulative impacts (see Table 8-1 for a summary). Sections 8.2 through 8.5 present the cumulative impacts from the past, present, and reasonably foreseeable future actions identified in this section.

Table 8-1. Past, present, and reasonably foreseeable future actions that could result in cumulative impacts (page 1 of 3).

Name and action description	Potential cumulative impact areas			
	Short-term (Section 8.2)	Long-term (Section 8.3)	Transportation (Section 8.4)[a]	Manufacturing (Section 8.5)
Past and present actions[b]				
Nevada Test Site				
Nuclear weapons testing, waste management, etc.	Air quality and public health and safety[b]	Air quality, groundwater, and public health and safety	Occupational and public radiological health and safety	None
Beatty Waste Disposal Area				
Low-level radioactive and hazardous waste disposal	None	Groundwater and public health and safety	Occupational and public radiological health and safety	None
Reasonably foreseeable future actions				
Inventory Module 1[c]				
Disposal of all spent nuclear fuel and high-level radioactive waste in the proposed Yucca Mountain Repository	Same resource areas as the Proposed Action (see Table 8-5)	Same resource areas as the Proposed Action (see Table 8-5)	Same resource areas as the Proposed Action (see Table 8-5)	Same resource areas as the Proposed Action (see Table 8-5)
Inventory Module 2[c]				
Disposal of all spent nuclear fuel and high-level radioactive waste, as well as Greater-Than-Class C waste and Special-Performance-Assessment-Required waste, in the proposed Yucca Mountain Repository	Same resource areas as the Proposed Action (see Table 8-5)	Same resource areas as the Proposed Action (see Table 8-5)	Same resource areas as the Proposed Action (see Table 8-5)	Same resource areas as the Proposed Action (see Table 8-5)
Nellis Air Force Range				
National testing and training for military equipment and personnel	None	None	Land use	None
Nevada Test Site				
Defense (stockpile stewardship and management, material disposition, nuclear emergency response), waste management, environmental restoration, nondefense research and development, work for others	Air quality, groundwater, socioeconomics, public health and safety. (Note: The accident analysis of potential external events in Appendix H addresses the effects of possible future resumption of nuclear weapons tests).	Groundwater and public health and safety	Occupational and public radiological health and safety	None
Nevada Test Site				
Alternative Energy Generation Facility	*Land use, utilities*	None	None	None
DOE Complex-Wide Waste Management Activities Affecting the Nevada Test Site				
Treatment, storage, and disposal of low-level radioactive waste, mixed waste, transuranic waste, high-level radioactive waste, and hazardous waste from past and future nuclear defense and research activities	No additional[d] beyond those analyzed for Nevada Test Site activities	Groundwater and public health and safety	Occupational and public radiological health and safety	None

Table 8-1. Past, present, and reasonably foreseeable future actions that could result in cumulative impacts (page 2 of 3).

Name and action description	Potential cumulative impact areas			
	Short-term (Section 8.2)	Long-term (Section 8.3)	Transportation (Section 8.4)[a]	Manufacturing (Section 8.5)
Reasonably foreseeable future actions (continued)				
Low-Level Waste Intermodal Transfer Station				
Construction and operation of an intermodal transfer station for the shipment of low-level radioactive waste to the Nevada Test Site near Caliente	None	None	Same resource areas as the Proposed Action (see Table 8-5) (Caliente intermodal transfer station and highway route for heavy-haul trucks)	None
Timbisha Shoshone Reservation				
Creation and development of a discontiguous reservation in eastern California and southwestern Nevada	Land use, groundwater	None	Water consumption, land use, public safety, environmental justice	None
Cortez Pipeline Gold Deposit Projects				
Continued operation and potential expansion of a gold mine and processing facility	None	None	Land use and ownership (Carlin rail corridor)	None
Apex Bulk Commodities Intermodal Transfer Station				
Construction and operation of an intermodal transfer station for copper concentrate near Caliente	None	None	Same resource areas as the Proposed Action (see Table 8-5) (Caliente intermodal transfer station and highway route for heavy-haul trucks)	None
Shared use of a DOE branch rail line				
Increase in rail operations and traffic resulting from rail service options for nearby mine operators and communities	None	None	Same resource areas as the Proposed Action (see Table 8-5)	None
Private Fuel Storage				
Temporary storage of spent nuclear fuel at the Goshute Reservation in Utah	None	None	Occupational and public radiological health and safety	None
Owl Creek Energy Project				
Temporary storage of spent nuclear fuel	None	None	Potential occupational and public radiological health and safety	None
Ivanpah Airport				
Construction of an airport on previously undisturbed land	None	None	Land use (Jean transportation corridor)	None
Moapa Paiute Energy Center				
Lease land and water use for construction of a coal-fired powerplant	None	None	Land use	None

Table 8-1. Past, present, and reasonably foreseeable future actions that could result in cumulative impacts (page 3 of 3).

Name and action description	Potential cumulative impact areas			
	Short-term (Section 8.2)	Long-term (Section 8.3)	Transportation (Section 8.4)[a]	Manufacturing (Section 8.5)
Reasonably foreseeable future actions (continued)				
Southern Nevada Public Land Management Act				
Convey approximately 110 square kilometers[e] of Bureau of Land Management lands to commercial and private entities	Land use and ownership	None	Land use and ownership	None
Desert Space Station Science Museum				
Construct an 8,800-square-meter[f] science museum on land acquired from the Bureau of Land Management	Land use	None	None	None

a. In addition to the specific actions identified in Section 8.1 and summarized in this table, the cumulative impacts for national transportation consider the occupational and public radiological health impacts of other past, present, and reasonably foreseeable future shipments of radioactive material.
b. The impacts of most past and present actions are included in the existing environmental baseline described in Chapter 3 and, therefore, are generally encompassed in the analysis of potential impacts of the Proposed Action in Chapters 4, 5, and 6. This includes site characterization activities at Yucca Mountain.
c. As described in Section 8.1.2.1, there would be essentially no difference in the design and operation of the repository for Inventory Module 1 or 2. Therefore, the cumulative impacts from Inventory Module 1 are generally considered the same as those from Inventory Module 2.
d. DOE waste management activities at the Nevada Test Site are included for the continuation of waste management activities at current levels, plus additional wastes that could be received as a result of decisions based on the Waste Management Programmatic EIS (DIRS 101816-DOE 1997, all). This includes cumulative impacts of transportation and disposal.
e. 110 square kilometers = 27,000 acres.
f. 8,800 square meters = 95,000 square feet.

8.1.1 PAST AND PRESENT ACTIONS

The description of existing (baseline) environmental conditions in Chapter 3 includes the impacts of most past and present actions on the environment that the Proposed Action would affect. This includes site characterization activities at Yucca Mountain. The impacts of past and present actions are, therefore, generally encompassed in the Chapter 4, 5, and 6 analyses of potential environmental impacts of the Proposed Action because the baseline for these analyses is the affected environment described in Chapter 3.

Two past actions that are not addressed in the Chapter 3 environmental baseline were identified for inclusion in the cumulative impact analysis in Sections 8.2, 8.3, and 8.4—past DOE activities at the Nevada Test Site (nuclear weapons testing, etc.) and past disposal of low-level radioactive waste at the Beatty Waste Disposal Area. Resources identified where past Nevada Test Site activities could add to impacts from the Proposed Action include air quality, groundwater, public health and safety, and transportation. For the Beatty Waste Disposal Site, the analysis included potential cumulative impacts from past transportation of waste to the Beatty site and from potential groundwater contamination.

Other actions that are presently occurring also have a component that is reasonably foreseeable as a future action. These are discussed in Section 8.1.2.

8.1.2 REASONABLY FORESEEABLE FUTURE ACTIONS

This section describes the reasonably foreseeable future actions that the cumulative impacts analysis considered. The analysis included cumulative impacts from the disposal in the proposed repository of all

projected spent nuclear fuel and high-level radioactive waste as well as Greater-Than-Class-C waste and Special-Performance-Assessment-Required waste as reasonably foreseeable future actions (Inventory Modules 1 and 2; see Section 8.1.2.1). Sections 8.1.2.2 and 8.1.2.3 describe other Federal, non-Federal, and private actions that could result in cumulative impacts. This chapter does not discuss cumulative impacts for the No-Action Alternative. Chapter 7, Section 7.3, describes those impacts. Chapters 2 and 7 contain details on the No-Action Alternative and on continued storage of the material at its current locations or at one or more centralized location(s).

DOE gathered information on Federal, non-Federal, and private actions to identify reasonably foreseeable future actions that could combine with the Proposed Action to produce cumulative impacts. The types of documents reviewed included other EISs, resource management plans, environmental assessments, Notices of Intent, Records of Decision, etc. Consultations with Federal agencies, state and local agencies, and Native American tribes (see Appendix C) also contributed to the information used in the cumulative impact analysis.

8.1.2.1 Inventory Modules 1 and 2

Under the Proposed Action, DOE would emplace in the proposed Yucca Mountain Repository as much as 70,000 MTHM of spent nuclear fuel and high-level radioactive waste. Of the 70,000 MTHM, approximately 63,000 MTHM would be commercial spent nuclear fuel. The remaining 7,000 MTHM would consist of approximately 2,333 MTHM of DOE spent nuclear fuel and approximately 8,315 canisters (4,667 MTHM) containing solidified high-level radioactive waste (commercial and defense-related). To determine the number of canisters of high-level radioactive waste included in the Proposed Action waste inventory, DOE used an equivalence of 2.3 MTHM per canister of commercial high-level radioactive waste and 0.5 MTHM per canister of defense high-level radioactive waste as discussed in Appendix A, Section A.2.3.1. DOE has consistently used the 0.5-MTHM-per-canister equivalence since 1985. Using a different approach would change the number of canisters of high-level radioactive waste analyzed for the Proposed Action. Regardless of the number of canisters, the impacts from the entire inventory of high-level radioactive waste are analyzed in this chapter. In addition, the 70,000 MTHM inventory would include an amount of surplus plutonium as spent mixed-oxide fuel or immobilized plutonium.

Inventory Modules 1 and 2 represent the reasonably foreseeable future actions of disposing of all projected commercial and DOE spent nuclear fuel and all high-level radioactive waste as well as Greater-Than-Class-C waste and Special-Performance-Assessment-Required waste in the proposed repository (see Figure 8-1). Under Inventory Module 1, DOE would emplace all projected commercial spent nuclear fuel (about 105,000 MTHM), all DOE spent nuclear fuel (about 2,500 MTHM), and all high-level radioactive waste (approximately 22,280 canisters). Inventory Module 2 includes the Module 1 inventory plus other radioactive material that could require disposal in a monitored geologic repository (commercial Greater-Than-Class-C waste and DOE Special-Performance-Assessment-Required waste). The estimated quantities of these other wastes are about 2,000 cubic meters (71,000 cubic feet) and about 4,000 cubic meters (140,000 cubic feet), respectively. Appendix A contains further details on these inventories.

The following paragraphs summarize the differences in repository facilities and operations to receive, package, and emplace the additional materials in Inventory Module 1 or 2. The information on Modules 1 and 2 in this section is from CRWMS M&O (DIRS 104508-1999, DIRS 104523-1999, and DIRS 102030-1999) unless otherwise noted. Table 8-2 summarizes the increased number of shipments that would be required to transport the Module 1 or 2 inventory to the repository. As for the Proposed Action, the estimated numbers of shipments were based on the characteristics of the materials, shipping capabilities at the commercial nuclear sites and DOE facilities, the assumption that there would be one shipping cask per truck or railcar (a train would normally use multiple rail cars and ship more than one

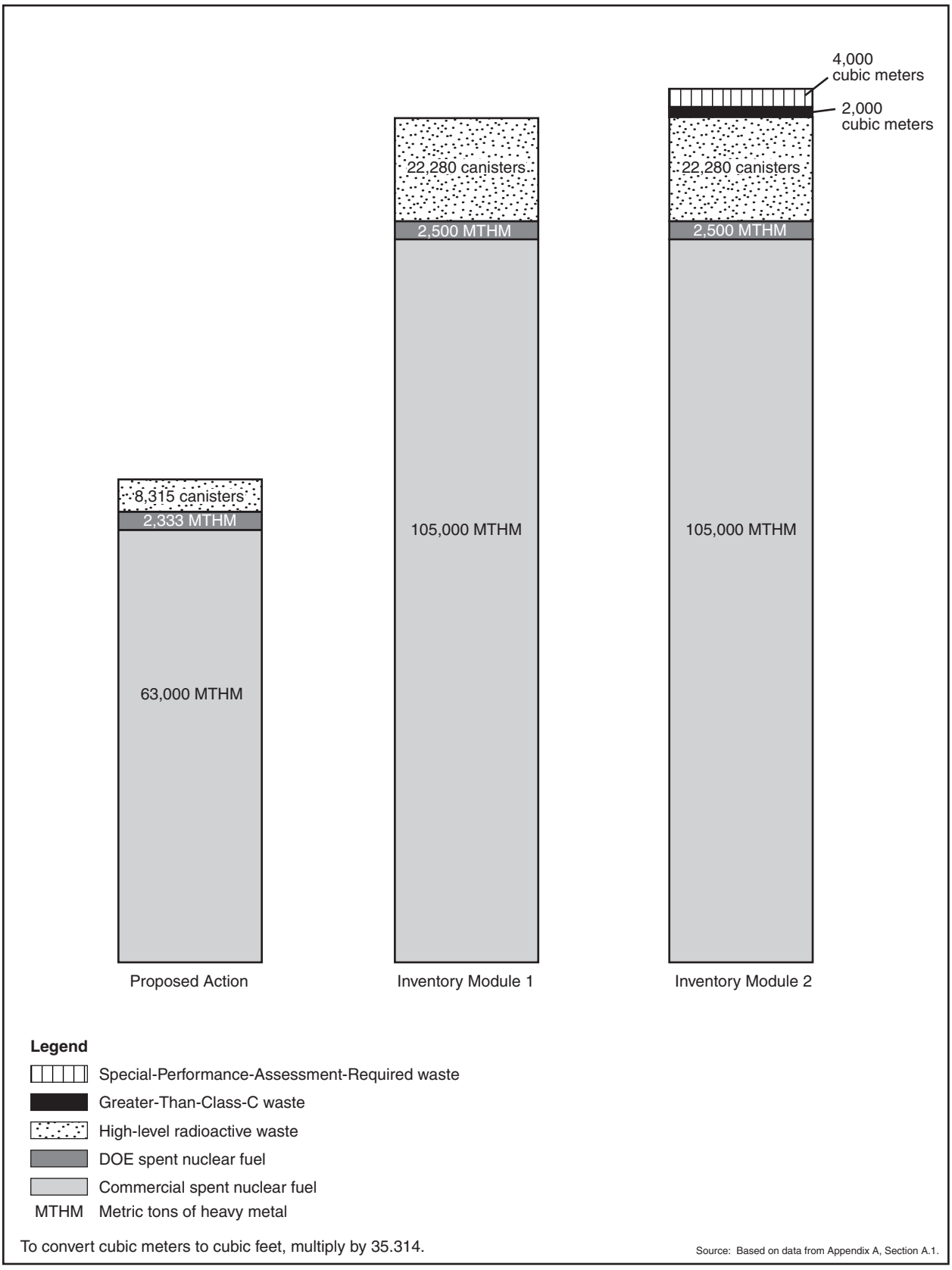

Figure 8-1. Proposed Action, Module 1, and Module 2 inventories evaluated for emplacement in a repository at Yucca Mountain.

Table 8-2. Estimated number of shipments for the Proposed Action and Inventory Modules 1 and 2.[a,b]

	Proposed Action				Module 1				Module 2			
	Mostly legal-weight truck		Mostly rail		Mostly legal-weight truck		Mostly rail		Mostly legal-weight truck		Mostly rail	
Material	Truck	Rail[c]	Truck	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck	Rail
Commercial SNF[d]	41,000	0	1,100	7,200	80,000	0	3,100	13,000	80,000	0	3,100	13,000
DOE SNF	3,500	300	0	770	3,700	300	0	800	3,700	300	0	800
HLW[e]	8,300	0	0	1,700	22,000	0	0	4,500	22,000	0	0	4,500
GTCC[f] waste	0	0	0	0	0	0	0	0	1,100	0	0	280
SPAR[g] waste	0	0	0	0	0	0	0	0	1,800	55	0	410
Totals	***53,000***	***300***	***1,100***	***9,700***	***110,000***	***300***	***3,100***	***18,000***	***109,000***	***360***	***3,100***	***19,000***

a. Source: Appendix J, Section J.1.3.1.
b. Totals might differ from sums of values due to rounding.
c. For this EIS, each combination of a shipping cask and railcar is assumed to be a single shipment.
d. SNF = spent nuclear fuel.
e. HLW = high-level radioactive waste.
f. GTCC = Greater-Than-Class-C.
g. SPAR = Special-Performance-Assessment-Required.

cask), various cask designs, and the transportation mode mix (mostly legal-weight truck or mostly rail). Appendix J contains additional details on Inventory Module 1 and 2 transportation requirements.

The following are the major differences between the repository facilities and operations for Inventory Modules 1 and 2 and those for the Proposed Action, which are described in Chapter 2:

- The longer time required to receive, package, and emplace the additional spent nuclear fuel, high-level radioactive waste, Greater-Than-Class-C waste, and Special-Performance-Assessment-Required waste, and to close the repository, for Inventory Module 1 or 2 versus that for the Proposed Action. The periods for the various project phases for Inventory Modules 1 and 2 would be the same.

- The need for more subsurface area to emplace about 17,000 to 26,000 waste packages for the Inventory Modules in comparison to about 11,000 to 17,000 waste packages for the Proposed Action.

Table 8-3 lists the differences in the expected time sequence for the repository construction, operation and monitoring, and closure phases for the Proposed Action and the Inventory Modules. DOE expects the construction phase to last for 5 years. Following this phase, repository development is projected to last for 22 years and emplacement for 24 years for the Proposed Action. During the operation and monitoring phase, development and emplacement is expected to last for 36 and 38 years, respectively, for Module 1 or Module 2. Monitoring activities during this phase would occur concurrently and then would extend beyond the emplacement period for up to 300 years. DOE expects the closure phase to last between 10 and 17 years for the Proposed Action and between 12 and 23 years for the Inventory Modules.

Table 8-3. Expected time sequence (years) of Yucca Mountain Repository phases for the Proposed Action and Inventory Module 1 or 2.

		Operation and monitoring phase			
Inventory	Construction phase	Development	Emplacement[a]	Monitoring	Closure phase
Proposed Action	5	22	24 - 50	76 - 300	10 - 17
Module 1 or 2	5	36	38 - 51	62 - 300	12 - 23

a. Range results from consideration of various operating modes with and without aging.

The amount of land required for surface facilities would increase only slightly for Inventory Module 1 or 2 from that for the Proposed Action (see Table 8-4). The design and operation of the repository surface facilities for Inventory Modules 1 and 2, including a Cask Maintenance Facility if it was at the Yucca Mountain site, would not differ much from those of the Proposed Action. The rate of material receipt,

Table 8-4. Amount of land (in square kilometers) newly disturbed at the proposed Yucca Mountain Repository for the Proposed Action and Inventory Module 1 or 2.[a,b,c]

Area	Proposed Action		Module 1 or 2	
	Higher-temperature	Lower-temperature	Higher-temperature	Lower-temperature
North Portal Operations Area	0.62	0.62	0.62	0.62
South Portal Development Area	0.15	0.15	0.15	0.15
Ventilation Shaft Operations Areas and access roads	0.83 (7 shafts)	1.04 - 1.42 (10 - 17 shafts)	1.13 (11 shafts)	1.38 - 1.89 (16 - 25 shafts)
Excavated rock storage area	0.87	0.87 - 1.51	1.40	1.40 - 2.02
Landfill	0.04	0.04 - 0.06	0.04	0.04 - 0.06
Solar power generating facility	0.22	0.22	0.22	0.22
Concrete batch plant	0.06	0.06	0.06	0.06
Surface aging facility	0	0 - 0.47	0	0 - 0.47
Totals	***2.8***	***3.0 - 4.5***	***3.6***	***3.9 - 5.5***

a. Source: DIRS 152010-CRWMS M&O (2000, Table 6-2, p. 52); DIRS 150941-CRWMS M&O (2000, p. 4-9 and Figure 6-1, p. 6-27); DIRS 155515-Williams (2001, 2.1-m Spacing Option: p. 27 and 29; 6.4-m Spacing Option: p. 24); DIRS 155516-Williams (2001, p. 3); DIRS 153882-Griffith (2001, p. 8).
b. To convert square kilometers to acres, multiply by 247.1.
c. Totals might differ from sums of values due to rounding.

packaging, and emplacement would be approximately the same and would require an extra 14 years beyond the 24-year emplacement period for the Proposed Action. There would be no difference in the duration of the emplacement period between Inventory Modules 1 and 2 because the surface and subsurface facilities could accommodate the small number of additional shipments and waste packages for Module 2.

The repository subsurface facilities for Inventory Module 1 or 2 would require about 60 percent more subsurface excavation than the Proposed Action. About 7.2 square kilometers (1,790 acres) would be required for the higher-temperature repository operating mode for Module 1 or 2, and from 10 to 15.4 square kilometers (2,480 to 3,810 acres) for the lower-temperature mode for Module 1 or 2. This compares to about 4.6 square kilometers (1,150 acres) and from 6.5 to 10.4 square kilometers (1,600 to 2,570 acres) for the higher- and lower-temperature modes, respectively, for the Proposed Action. Additional subsurface area would be needed if maximum spacing was used to achieve the lower-temperature mode. DOE would characterize this additional subsurface area, which would be adjacent to the blocks identified for the Proposed Action, more fully before its use. The subsurface facilities would not differ between Inventory Modules 1 and 2 for the lower-temperature operating mode with maximum-spacing because DOE would place the additional waste packages for Greater-Than-Class C and Special-Performance-Assessment-Required wastes between commercial spent nuclear fuel waste packages. However, total drift length would have to be increased by an estimated 3.7 to 4.9 kilometers (2.3 to 3.0 miles) for the other methods to achieve the lower-temperature operating mode when going from Inventory Module 1 to Module 2. There would be no difference in emplacement operating for Inventory Module 1 or 2 from those described for the Proposed Action in Chapter 2 unless DOE used the lower-temperature mode with surface aging. Because of the extra time involved in receiving and emplacing the Module 1 or 2 waste, there would be no delay in the process with the aging option before movement of the aged waste to the subsurface could begin, and DOE could move it at a faster rate. Monitoring and maintenance activities for Inventory Module 1 or 2 would be comparable to those for the Proposed Action with the exception of their duration in some cases.

Because there would be an increase in the number of waste packages and the increased length of the drifts that would be necessary for Inventory Module 1 or 2, the duration of the closure phase would be longer for Module 1 or 2 (12 to 23 years) compared to 10 to 17 years for the Proposed Action (see Table 8-3).

Inventory Module 1 or 2 closure phase activities would not otherwise differ from those described in Chapter 2 for the Proposed Action.

As discussed in the introduction to this chapter, the Department is not proposing at this time to emplace the additional materials from the Inventory Modules in the repository. If a future proposal was made to emplace these materials, the Department would ensure that appropriate National Environmental Policy Act reviews were performed.

8.1.2.2 Federal Actions

The following paragraphs describe reasonably foreseeable future actions of Federal agencies that could result in cumulative impacts in addition to those from Inventory Module 1 or 2.

Nellis Air Force Range

The Nellis Air Force Range (also referred to as the Nevada Test and Training Range) in south-central Nevada (see Figure 8-2) is a national test and training facility for military equipment and personnel. The *Renewal of the Nellis Air Force Range Land Withdrawal: Legislative Environmental Impact Statement* (DIRS 103472-USAF 1999, all) addresses the potential environmental consequences of the Air Force proposal to continue the Nellis Air Force Range land withdrawal for military use. As part of the actions analyzed in the Legislative EIS, the Air Force would renew its land withdrawal of almost 3 million acres and transfer responsibility to DOE for approximately 127,620 acres of land generally described as Pahute Mesa. Figures 8-2 and 8-3 show Pahute Mesa as part of the Nevada Test Site. The President signed S.1059 in October 1999, making it Public Law 106-65 and authorizing the renewed withdrawals and transfers described in the Legislative EIS.

The Air Force also issued the *Final Environmental Impact Statement F-22 Aircraft Force Development Evaluation and Weapons School Beddown at Nellis Air Force Base* in 1999 (DIRS 155928-Estrada 2001, all) to evaluate the potential impacts of locating F-22 aircraft at the Nellis Air Force Range. The action would entail the construction of some new facilities and other modifications to support the aircraft. The Record of Decision (DIRS 155918-Keck 1999, all) shows that the action "would result in either negligible effects or would not change current environmental conditions at Nellis AFB" for the major discipline areas. Therefore, DOE has not quantified potential cumulative impacts from this action. The descriptions of the affected environment in Chapter 3 and the potential impacts of the Proposed Action in Chapters 4, 5, and 6 include the effects of present activities at the Nellis Air Force Range.

Nevada Test Site

Several actions at the Nevada Test Site would pose a cumulative impact. Figure 8-3 shows a map of the Nevada Test Site to assist in identifying the location of these actions.

The *Final Environmental Impact Statement for the Nevada Test Site and Off-Site Locations in the State of Nevada* (DIRS 101811-DOE 1996, all) examines current and future DOE activities in southern Nevada at the Nevada Test Site, Tonopah Test Range, and sites the Department formerly operated in Nevada. The first Record of Decision for that EIS (61 *FR* 65551, December 13, 1996) states that DOE would implement a combination of three alternatives: Expanded Use, No Action (continue operations at current levels) regarding mixed and low-level radioactive waste management, and Alternate Use of Withdrawn Lands regarding public education. On February 18, 2000, the Department issued an Amendment of the Record of Decision (65 *FR* 10061, February 26, 2000). In this Amendment, DOE decided, based on its National Environmental Policy Act reviews for the Nevada Test Site and for the Complex-wide waste management program described in the Programmatic Waste Management EIS (DIRS 101816-DOE 1997, all), to implement the Expanded Use Alternative for waste management activities at the Test Site, including mixed and low-level radioactive waste.

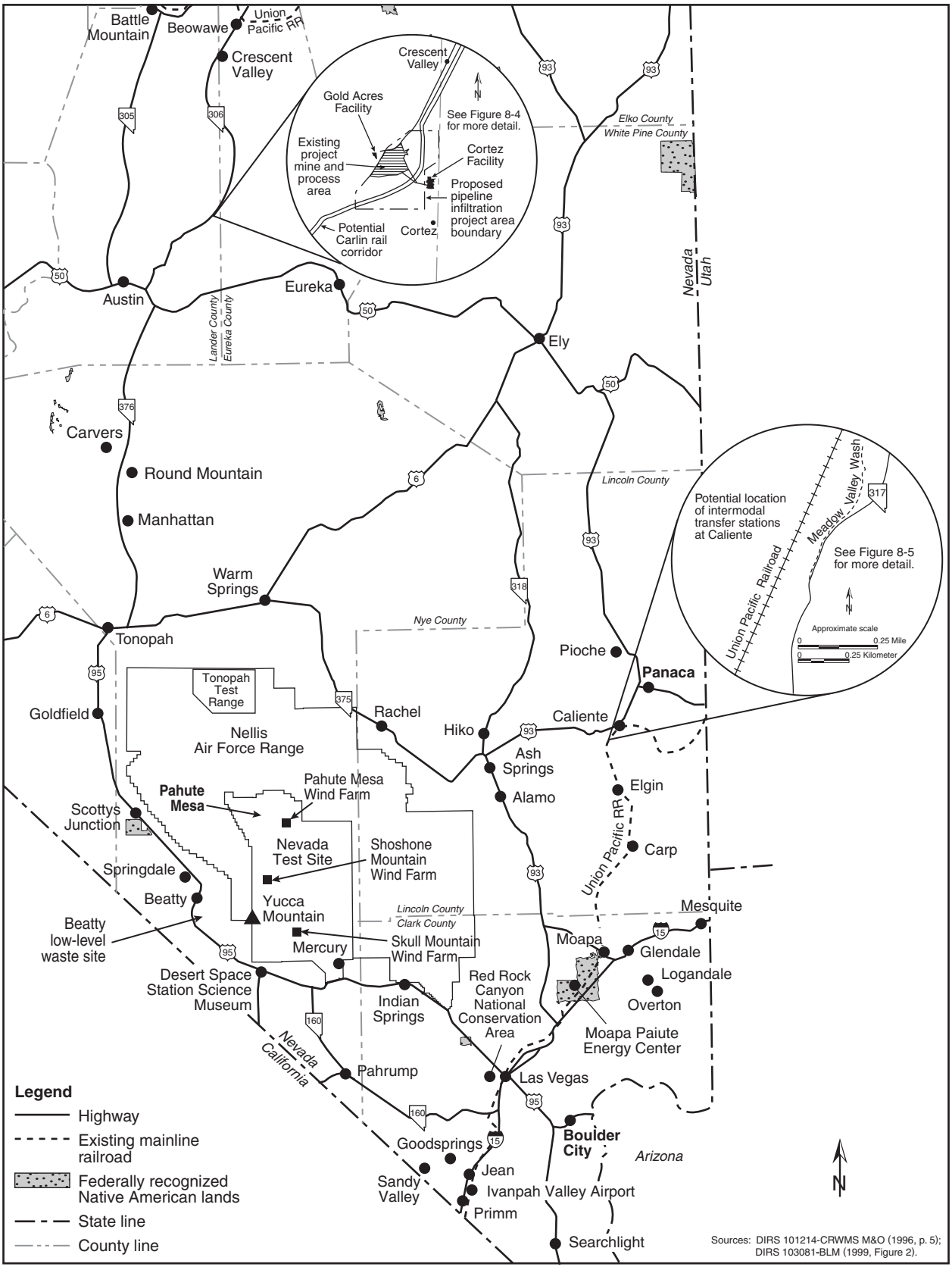

Figure 8-2. Locations of past, present, and reasonably forseeable future actions considered in the cumulative impact analysis.

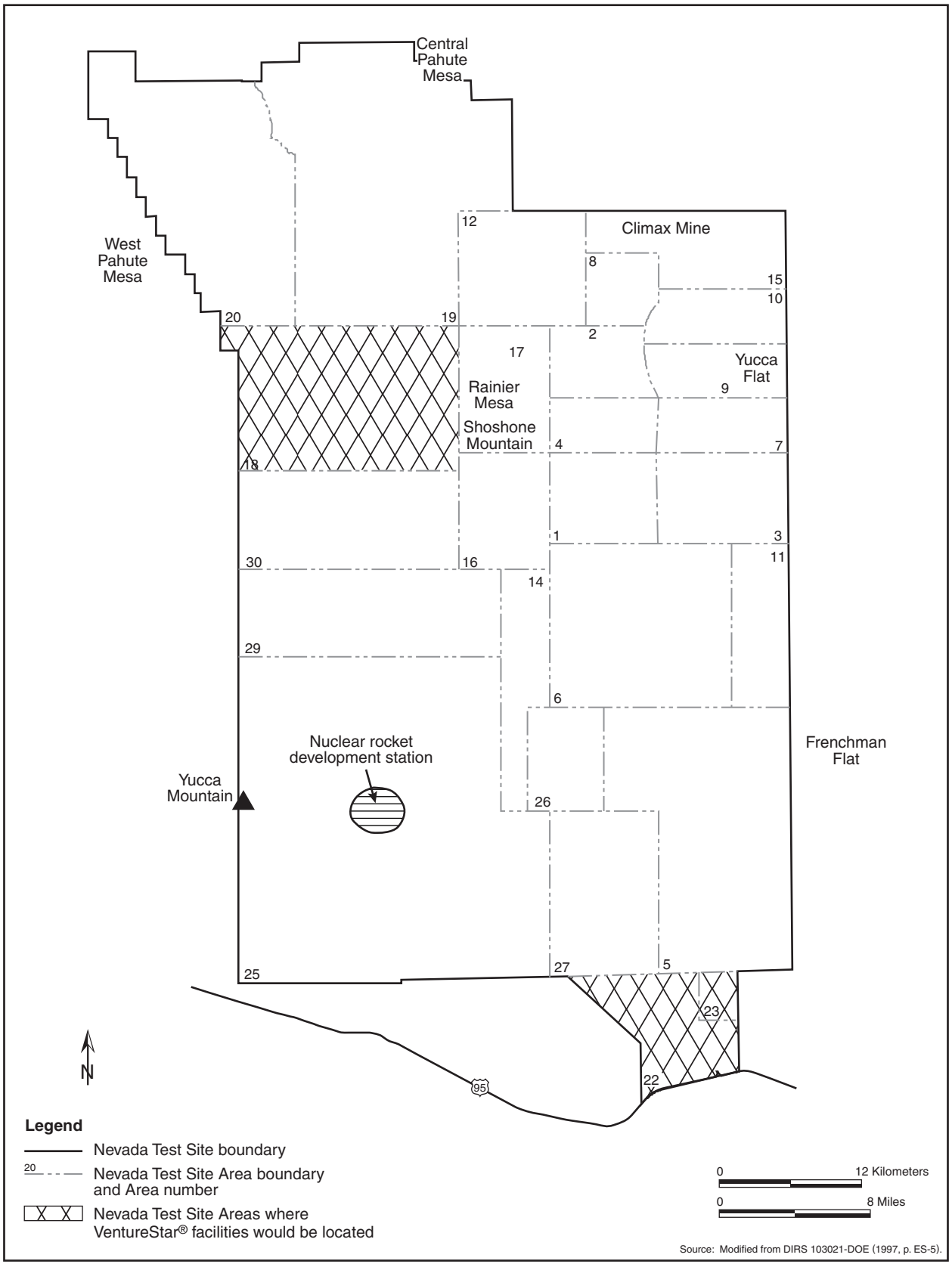

Figure 8-3. Potential locations of proposed cumulative activity associated with VentureStar®/Kistler at the Nevada Test Site.

The Expanded Use Alternative incorporates all the activities and operations from ongoing Nevada Test Site programs and increases some of those programs. Activities of the Office of Defense Programs would expand at both the Nevada Test Site and the Tonopah Test Range, primarily in the areas of stockpile stewardship and management, materials disposition, and nuclear emergency response. As part of the Stockpile Stewardship and Management Program, there are continuing *subcritical* weapons test activities to study aging of weapons components and their reliability after aging. Waste management activities would continue at current levels pending decisions by DOE based on the *Final Waste Management Programmatic Environmental Impact Statement for Managing Treatment, Storage, and Disposal of Radioactive and Hazardous Waste* (DIRS 101816-DOE 1997, all). Based on the preferred alternative in the programmatic EIS, this cumulative impact analysis included the additional low-level and mixed waste that could come to the Nevada Test Site. The Environmental Restoration Program would continue, potentially at an accelerated rate, at the Nevada Test Site and all offsite locations. Under the Work for Others Program, military use of the airspace over the Nevada Test Site and the Tonopah Test Range would increase, as would the use of certain lands on the Nevada Test Site by the military for training, research, and development. Public education activities would include the possible construction of a museum that highlights Nevada Test Site testing activities. The Nevada Test Site Development Corporation is considering the VentureStar® program initiative from the Lockheed Martin Corporation for a launch/recovery system that would link with the Kistler Aerospace Satellite launch and recovery project. The VentureStar® program would require two spaceports, a manufacturing and assembly facility, and a payload processing and administrative complex. These activities could occur in Areas 18, 22, and 23, respectively (Figure 8-3). However, the Kistler aerospace activity is currently on hold (DIRS 152582-Davis 2000, all), and there is not enough information at this time to perform a cumulative impacts analysis for this project.

An analysis of the environmental impacts presented in the Nevada Test Site EIS (DIRS 101811-DOE 1996, all) (including impacts from weapons testing and the VentureStar®/Kistler project) identified the following resources for which impacts could overlap in relation to geography and timing with impacts from the proposed repository: air quality, groundwater, socioeconomics, public health and safety, and transportation. The effects on the Yucca Mountain Repository if a decision were made in the future to resume nuclear weapons testing or from a possible vehicle launch or recovery accident at the proposed VentureStar®/Kistler project are considered in the accident analysis of potential external events in Appendix H.

As discussed above in the section on the Nellis Air Force Range, part of the land previously assigned to the Range, specifically the parcel known as Pahute Mesa, has been transferred to the Nevada Test Site. The use of the land has not changed; this was a transfer of jurisdiction to match actual use with ownership.

A moratorium on the explosive testing of nuclear weapons began in October 1992. As discussed in the Nevada Test Site EIS, however, other testing continues at the Test Site, including dynamic, hydrodynamic, and explosive tests (DIRS 101811-DOE 1996, all). These tests are necessary for the continued assurance of the Nation's nuclear arsenal but do not result in nuclear explosions like those that were common during the Cold War. Therefore, environmental contamination from nuclear weapons testing is largely due to past testing and not to current activities at the Test Site. Although there are potential past and present impacts of the explosive testing of nuclear weapons, the long-lived radionuclides that have been deposited far underground could pose future impacts that are evaluated in Section 8.3. As shown in that section, DOE has made conservative assumptions to ensure the identification of any potential cumulative impacts between the Nevada Test Site and the proposed repository.

In March 2000, DOE published the *Nevada Test Site Development Corporation's Desert Rock Sky Park at the Nevada Test Site Environmental Assessment* (DIRS 155529-DOE 2000, all) and the associated

Finding of No Significant Impact. This environmental assessment evaluated the potential impacts of issuing a general use permit to the Nevada Test Site Development Corporation to develop, operate, and maintain a commercial/industrial park at the Test Site. The project would permit development of approximately 2 square kilometers (510 acres) of land already designated as a "private/commercial development zone."

In March 2001, DOE published the *Preapproval Draft Environmental Assessment for a Proposed Alternative Energy Generation Facility at the Nevada Test Site* (DIRS 154545-DOE 2001, all). The NTS Development Corporation (NTSDC) and the M&N Wind Power Inc. and Siemens (MNS) have requested authorization (under an easement between DOE and NTSDC and a subeasement between NTSDC and MNS) for the installation of 260 and 436 megawatts of a commercial wind-turbine-generated power system using as many as 545 wind turbine generators on three areas of the Nevada Test Site. The development of this system would allow for land use diversification of the Test Site by including nondefense and private use. The areas consist of the Shoshone Mountain Area, the Pahute Mesa, and Skull Mountain. DOE used these areas comprising 4.9 square kilometers (1,200 acres) for nuclear and conventional explosive testing facilities. The wind generators would be constructed on the ridges in these areas to maximize the effects of wind currents. They would be constructed in three phases and would not conflict with continued Nevada Test Site operations in the valley areas. On July 25, 2001, DOE announced its intention to prepare an EIS based on its analysis contained in the previous environmental assessment. This EIS would consider alternative locations and examine the impacts of the No-Action Alternative.

DOE Waste Management Activities

The Waste Management Programmatic EIS (DIRS 101816-DOE 1997, all) evaluates the environmental impacts of managing five types of radioactive and hazardous wastes generated by past and future nuclear defense and research activities at a variety of DOE sites in the United States. The five waste types are low-level radioactive waste, mixed low-level waste (referred to in this EIS as simply mixed waste), transuranic waste, high-level radioactive waste, and hazardous waste. The Waste Management Programmatic EIS provides information to assist DOE with decisions on the management of, and facilities for, the treatment, storage, and disposal of these radioactive, hazardous, and mixed wastes.

DOE has issued six Records of Decision or revisions to Records of Decision on the Programmatic Waste Management EIS (DIRS 101816-DOE 1997, all). The discussion of these decisions is presented in this section; however, the impacts of actions from these decisions would be related primarily to transportation of materials; these impacts are part of the analysis in Section 8.4. The first Record of Decision (63 *FR* 3629, January 23, 1998) announced the Department's decision to treat and store transuranic waste at each DOE facility except Sandia National Laboratory, which would transfer its transuranic waste to Los Alamos National Laboratory for preparation and storage. This waste would ultimately be disposed of in the Waste Isolation Pilot Plant in Carlsbad, New Mexico.

The fourth Record of Decision announced the Department's decision to make the Nevada Test Site and the Hanford Site available to all DOE sites for disposal of low-level waste and mixed low-level waste. This decision was accompanied by an amendment to the Record of Decision for the Nevada Test Site EIS (65 *FR* 10061, February 25, 2000) to implement the Expanded Use Alternative from that EIS.

On December 29, 2000, the Department announced a revision (65 *FR* 82985) to its decision regarding transuranic waste. Under this decision, the Department would establish at the Waste Isolation Pilot Plant the capability to prepare transuranic waste for disposal. In addition, the above-ground capacity at the Waste Isolation Pilot Plant would be increased by 25 percent.

On July 25, 2001, the Department issued (66 *FR* 38646) a further revision to its previous decision by announcing its decision to transfer about 300 cubic meters of transuranic waste from the Mound facility

in Miamisburg, Ohio, to the Savannah River Site for storage, characterization, and repackaging prior to sending it to the Waste Isolation Pilot Plant.

The *Waste Isolation Pilot Plant Disposal Phase Final Supplemental Environmental Impact Statement* (DIRS 101814-DOE 1997, Chapter 5) identifies potential cumulative transportation impacts from the shipment of transuranic wastes from DOE sites across the United States, including the Nevada Test Site, to the Waste Isolation Pilot Plant in southeastern New Mexico for disposal.

Low-Level Waste Intermodal Transfer Station

DOE prepared a draft environmental assessment (DIRS 103225-DOE 1998, all) on a proposed action to encourage low-level radioactive waste generators and their contractors to use transportation alternatives that would minimize radiological risk, enhance safety, and reduce the cost of waste shipments to the Nevada Test Site. However, DOE determined that there was no decision for it to make relative to transportation of low-level radioactive waste that would require a National Environmental Policy Act analysis, and therefore no longer plans to issue a National Environmental Policy Act document. DOE has published a technical report that provides its low-level radioactive waste generators with a comparative risk analysis of alternative highway routes and intermodal transportation facilities (DIRS 155779-DOE 1999, all).

Road improvements to accommodate legal-weight trucks and the construction of a rail siding or spur on a 0.02-square-kilometer (5-acre) site 1.2 kilometers (0.75 mile) south of Caliente would be needed for the low-level radioactive waste intermodal transfer station. Lifting equipment (crane or forklift) would transfer containers of low-level radioactive waste from railcars to trucks for transport to the Nevada Test Site. Based on a 10-year average estimate of low-level waste volumes and shipments for the expanded use alternative from the Nevada Test Site EIS (DIRS 101811-DOE 1996, pp. 5-110 to 5-112), DOE expects the traffic through the intermodal transfer station to be less than 3 trains per day and about 14 trucks per day (7 outbound from the station and 7 returning from the Nevada Test Site). Intermodal transfer operations would occur only during daytime working hours, with containers dropped off during the night transported to the Nevada Test Site the following morning. A staff of three would be adequate to conduct operations at the station. Trucks would be inspected and decontaminated, as necessary, at the Nevada Test Site before returning to the station (DIRS 103225-DOE 1998, pp. 2-1 to 2-10 unless otherwise noted).

A high-end estimate for the planned trucking operation to support the low-level radioactive waste intermodal transfer station indicates a terminal on about 0.04 to 0.06 square kilometer (10 to 15 acres), a maintenance building 21 by 23 meters (70 by 75 feet), 9 tractors and 27 trailers, and 11 employees. One proposed location would be south and just outside of Caliente. Trucks would not pass through the Town of Caliente to reach the intermodal transfer station site (DIRS 103225-DOE 1998, p. 5-4).

The projections of low-level radioactive waste shipments from current DOE-approved generators to the Nevada Test Site do not extend to 2010 when shipments of spent nuclear fuel and high-level radioactive waste would begin to the proposed Yucca Mountain Repository. However, because it is reasonable to assume that low-level radioactive waste shipments to the Nevada Test Site could continue and occur coincidentally with shipments to the Yucca Mountain Repository, Section 8.4 analyzes the potential for cumulative impacts from the construction and operation of these two intermodal transfer stations as well as a privately owned intermodal transfer station described in the following section.

Timbisha Shoshone Reservation

The Secretary of the Interior issued a draft report to Congress (DIRS 103470-Timbisha Shoshone and DOI 1999, all) describing a plan to establish a discontiguous reservation for people of the Timbisha Shoshone Tribe in portions of the Mojave Desert in eastern California and southwestern Nevada. On

November 1, 2000, the President signed Bill S.2102 (Public Law 106-423) to provide a permanent land base for the Timbisha Shoshone Tribe within its ancestral homeland.

The National Park Service of the U.S. Department of the Interior prepared a Legislative EIS (DIRS 154121-DOI 2000, all), which describes the environmental impacts of this action. The EIS analyzes the potential transfer of almost 32 square kilometers (7,800 acres) in five noncontiguous parcels in portions of the Mojave Desert in eastern California and southwestern Nevada, as follows:

- Approximately 1.3 square kilometers (314 acres) in Furnace Creek, Death Valley National Park, California
- Approximately 4 square kilometers (1,000 acres) in Death Valley Junction, California
- Approximately 11 square kilometers (2,800 acres) in Scottys Junction, Nevada
- Approximately 2.6 square kilometers (640 acres) in Centennial, California
- Approximately 12 square kilometers (3,000 acres) in Lida, Nevada

Of these five parcels, the first three are in whole or in part within the 80-kilometer (50-mile) radius of the proposed repository. In addition to these five parcels, the Law authorizes the Secretary of the Interior to purchase two additional parcels of land with water rights as follows:

- Approximately 0.49 square kilometer (120 acres) at the Indian Rancheria Site, California
- Approximately 9.5 square kilometers (2,340 acres) at Lida Ranch, Nevada

In addition, Public Law 106-423 prescribes Federal water rights for these parcels of land and describes partnerships between the National Park Service and the Timbisha Shoshone Tribe that will provide economic and cultural opportunities for the Tribe while preserving the resources in the area. As described in the Legislative EIS (DIRS 154121-DOI 2000, all), activities on the parcels of land would not differ greatly from their historic uses. Modern housing with the associated infrastructure could be constructed at the Furnace Creek site, but would be limited by law to conserve and protect resources. Commercial development is permitted at several of the sites, but would have to be consistent with existing designations and uses of the land. The future development could cause potential transportation impacts, but the lack of information on specific plans precludes a detailed analysis at this time.

Because of the proximity of some of the parcels to the proposed repository and to some of the transportation corridors, there are potential cumulative impacts between their use and the proposed repository with regard to land use, regional water use, and transportation impacts. Therefore, DOE considered this action in its analysis of cumulative impacts in this chapter. As discussed in Chapter 6, the parcel near Scottys Junction (shown in Figure 8-1), if inhabited, could be affected if a rail corridor was used in the future.

8.1.2.3 Non-Federal and Private Actions

The following paragraphs describe reasonably foreseeable future actions of non-Federal and private agencies or individuals that could result in cumulative impacts. This EIS considers the Cortez Pipeline Gold Deposit projects described below to be private actions even though they require the approval of the Bureau of Land Management.

Cortez Pipeline Gold Deposit Projects

The Cortez Gold Mine Pipeline Project is near the potential branch rail line in the Carlin Corridor in Nevada (see Chapter 6, Section 6.3.2.2.2). Cortez Gold Mine, Inc., operates the Pipeline Project mine and processing facility; the environmental impacts of the existing mining operation are discussed in the *Cortez Pipeline Gold Deposit: Final Environmental Impact Statement* (DIRS 103078-BLM 1996, all). The Pipeline Infiltration Project (which was approved in March 1999) would expand the Pipeline Project area to add more land for the construction and operation of infiltration ponds to support the existing mine (DIRS 103081-BLM 1999, all). The Bureau of Land Management published the *South Pipeline Project Final Environmental Impact Statement* (DIRS 155530-BLM 2000, all) in which the proposed action was to "develop the South Pipeline ore deposit and construct associated facilities to continue to extract gold from the mined ore within the existing Project Area." Based on an analysis of the general area potentially affected by the Cortez Gold Mine Project, there could be cumulative land-use and ownership impacts with the proposed Carlin rail corridor (see Figure 8-2). The Bureau issued the Record of Decision for the EIS on June 27, 2000 (DIRS 155095-BLM 2000, all). On July 31, 2000, the Western Mining Action Project (representing Great Basin Mine Watch, Western Shoshone Defense Project, and Mineral Policy Center) filed an Appeal and Request for Stay (DIRS 155531-BLM 2001, all); however, the stay request was denied in January 2001.

Apex Bulk Commodities Intermodal Transfer Station

Apex Bulk Commodities is negotiating with BHP Copper of Ely, Nevada, to build an intermodal transfer station at Caliente near the potential intermodal transfer station site for shipping spent nuclear fuel and high-level radioactive waste to the proposed Yucca Mountain Repository. Apex anticipates one diesel truck per hour carrying 40 tons of copper concentrate, 24 hours per day, for 15 years. An improved access road and about 4,200 meters (14,000 feet) of new rail would be constructed. The transfer facility would be housed in a building 90 by 30 meters (300 by 100 feet) designed to retain dust, water, and spills generated during the transfer process. Air emission particulates would be collected in two baghouses. Apex would also need a truck maintenance facility, which would be in a building 30 by 18 meters (100 by 60 feet). An above-ground storage tank for about 45,000 liters (12,000 gallons) of diesel fuel is also planned. Apex estimates 25 new jobs for Caliente and an annual payroll of $800,000 (DIRS 103225-DOE 1998, p. 5-5).

Although a start date for Apex copper concentration intermodal transfer station and truck transportation operations is unknown, Section 8.4 analyzes the potential for cumulative impacts from the construction and operation of that station, assuming these activities would coincide with impacts from the Nevada Test Site low-level radioactive waste intermodal transfer station and the intermodal transfer station for shipments to the proposed Yucca Mountain Repository.

Shared Use of a DOE Branch Rail Line

If DOE built a branch rail line to transport spent nuclear fuel and high-level radioactive waste to the Yucca Mountain Repository, it could share the use of this line with others. A branch rail line in the Carlin corridor could provide transportation service options for mine operators in the central mountain valleys of Nevada and could provide freight service options for southwestern Nevada communities such as Tonopah, Beatty, Goldfield, and Pahrump. A branch rail line in the Caliente corridor could serve those communities plus Warm Springs, along with mine operators in the interior of Nevada. A branch rail line in the Valley Modified or Jean corridors would provide freight service access to farms, industries, and businesses in the Amargosa Valley and Pahrump communities. A Valley Modified branch line would also provide rail service to the Indian Springs community. Any of the potential branch rail lines to the Yucca Mountain site (see Chapter 6, Figure 6-14) would provide rail access to the Nevada Test Site. The shared use of a branch rail line would have positive economic benefits, but could produce cumulative impacts due to increased operations and traffic.

Private Fuel Storage at Skull Valley

In June 2000, the Nuclear Regulatory Commission published the *Draft Environmental Impact Statement for the Construction and Operation of an Independent Spent Fuel Storage Installation on the Reservation of the Skull Valley Band of Goshute Indians and the Related Transportation Facility in Tooele County, Utah* (DIRS 152001-NRC 2000, all). That EIS evaluates the environmental impacts of constructing and operating a facility for the interim storage of commercial spent nuclear fuel.

The storage site would be on the reservation of the Skull Valley Band of Goshute Indians in Skull Valley in Tooele County, Utah. The facility would occupy approximately 3.3 square kilometers (820 acres) and would involve construction of a 52-kilometer (32-mile) rail line on public land administered by the Bureau of Land Management from Skunk Ridge (near Low, Utah) to the reservation.

The facility would be constructed and operated by Private Fuel Storage, LLC, a limited liability company comprised of eight U.S. power utilities.

The storage site would be designed to store up to 40,000 metric tons of heavy metal (MTHM) of commercial spent nuclear fuel, which is sufficient to store all the spent nuclear fuel from the Private Fuel Storage member utilities as well as additional fuel from non-member utilities. The fuel would be stored in above-ground concrete vault structures that would provide structural integrity and radiation shielding. The proposed facility would be licensed by the Nuclear Regulatory Commission to operate for as long as 20 years, at which time the Commission could renew the license.

The facility would be used as an interim storage facility until a geologic repository was available for disposal of the spent nuclear fuel. Therefore, the actions considered in the Nuclear Regulatory Commission EIS could have cumulative impacts with those contemplated in the Yucca Mountain EIS by affecting the transportation routes through which material would arrive at the proposed repository. However, because of the distance of the storage facility from the Yucca Mountain site, DOE does not expect cumulative impacts between the proposed operation of the facility and the Proposed Action for this EIS.

Section 8.4 discusses estimated impacts from transportation of material to the Private Fuel Storage facility.

Owl Creek Energy Project

The Owl Creek Energy Project (DIRS 155595-Stuart and Anderson 1999, all) is a potential interim storage project for commercial spent nuclear fuel that would be developed in the State of Wyoming. The location for the project is near the Town of Shoshoni, Wyoming, and consists of about 11 square kilometers (2,700 acres) of privately owned land with access to rail and nearby roads. A private company is pursuing the project, which would be temporary, with a projected life of 40 years.

The Owl Creek Energy Project would involve the storage of spent nuclear fuel using dry storage techniques in specially designed facilities. However, the project is still in its infancy; no license application has been submitted to the Nuclear Regulatory Commission. Further, the potential impacts of the facility are unknown at present. Therefore, DOE has not attempted to quantify potential impacts at this time, but believes it would be unlikely that the operational impacts would be markedly different from those expected for the Private Fuel Storage Facility in Tooele County, Utah (described above).

Moapa Paiute Energy Center

In March 2001, the Bureau of Indian Affairs issued the *Moapa Paiute Energy Center Draft Environmental Impact Statement* (DIRS 155979-PBS&J 2001, all). Calpine Corporation proposes to construct the Moapa Paiute Energy Center on 0.26 square kilometer (65 acres) of land leased from the Moapa River Paiute Reservation approximately 12 kilometers (45 miles) northeast of Las Vegas. The

plant would consist of a nominal 760-megawatt baseload natural-gas-fired, combined-cycle power unit with peak capacity to approximately 1,100 megawatts. The land disturbance would consist of as much as 0.88 square kilometer (218 acres) of reservation land and as much as 0.33 square kilometer (82 acres) of off-reservation lands. Transmission lines would follow an existing Bureau of Land Management utility corridor that passes through the reservation, requiring no change in land use. The lines would pass approximately 19 kilometers (12 miles) to the southwest to the existing Nevada Power Company Harry Allen Substation. The natural gas supply system to the facility would consist of approximately 1,220 meters (4,000 feet) of pipeline and a pumping station. The natural gas line and the pump station would require approximately 0.004 square kilometer (5.5 acres). The Bureau of Land Management would be responsible for rights-of-way for construction, operation, and termination for the facilities in the utility right-of-way on the reservation.

Because the Energy Center would be some distance from the proposed repository, there is minimal potential for direct cumulative impacts with repository operation. Groundwater management practices would minimize depletion of groundwater resources. Air emissions would be minimized, and there would be essentially no potential for overlap of the plumes from the repository and the Energy Center.

Southern Nevada Public Land Management Act

The Southern Nevada Public Land Management Act (Public Law 105-263) authorizes the Bureau of Land Management to sell some public lands in the Las Vegas Valley to promote responsible and orderly development.

The law specifies that money generated by these land sales will remain in Nevada. This money will provide funding for a variety of land management activities emphasizing recreation sites, such as the following:

- Acquisition of environmentally sensitive land in Nevada, with priority given to lands in Clark County
- Capital improvements at the Lake Mead National Recreation Area, the Desert National Wildlife Refuge, the Red Rock Canyon National Conservation Area, and other areas administered by the Bureau of Land Management in Clark County, and the Spring Mountains National Recreation Area (subject to an annual limitation)
- Development of a multispecies habitat conservation plan in Clark County, Nevada
- Development of parks, trails, and natural areas in Clark County

The Act included approximately 110 square kilometers (27,000 acres) of land for sale (Public Law 105-263). As of April 2001, the Bureau of Land Management had conveyed about 17 square kilometers (4,200 acres) to private and commercial entities. In December 2000, the Bureau published its “Round 2 Preliminary Recommendation” in which it recommended the acquisition of more than 23 square kilometers (5,800 acres) of land throughout Nevada that is privately or commercially owned to be distributed among the Bureau, the National Park Service, and the Forest Service (DIRS 155597-BLM 2000, all).

This action has potential land use cumulative impacts because some of the parcels conveyed or acquired by the Bureau of Land Management could be either within the 80-kilometer (50-mile) radius of the proposed repository or near potential transportation corridors, although DOE cannot predict which parcels might be affected or the timing of such conveyances.

Ivanpah Valley Airport

On October 27, 2000, the President signed the Ivanpah Valley Airport Public Lands Transfer Act (Public Law 106-362) to transfer Federal lands in Ivanpah Valley, Nevada, to Clark County. The land to be transferred, which is part of the Mojave National Preserve, would be used for construction of a general aviation airport at Jean, Nevada.

The passage of the Ivanpah Valley Airport Public Lands Transfer Act does not automatically transfer the lands. Under provisions of the bill, the U.S. Departments of the Interior and Transportation must complete an environmental impact statement before an actual transfer. As described in Chapter 6, the initiation of the Stateline option of the Jean Corridor for a potential branch rail line encroaches upon the land to be transferred. Therefore, this EIS evaluates the potential for cumulative impacts due to the land transfer.

Desert Space Station Science Museum

The Nevada Science and Technology Center is proposing to construct an 8,800-square-meter (95,000-square-foot) museum on 1.8 square kilometers (450 acres) of land in Amargosa Valley at the intersection of U.S. Highway 95 and State Route 373 (DIRS 148148-Williams and Levy 1999, p. 1). The land would be transferred from the Bureau of Land Management to Nye County, which in turn would lease the land to the Nevada Science and Technology Center (DIRS 155478-Dorsey 2001, all). As shown in Figure 8-2, this parcel of land is near the Nevada Test Site and is, thus, within the region of influence for the proposed repository.

Because detailed quantitative impact information is not available, DOE has not included a detailed analysis of this action other than to report the potential land use implications in Section 8.2.1.

8.2 Cumulative Short-Term Impacts in the Proposed Yucca Mountain Repository Region

This section describes short-term cumulative impacts during the construction, operation and monitoring, and closure of the repository in the regions of influence for the resources the repository could affect. DOE has organized the analysis of cumulative impacts by resource area. As necessary, the discussion of each resource area includes cumulative impacts from Inventory Module 1 or 2; from other Federal, non-Federal, and private actions; and from the combination of Inventory Modules 1 and 2 and other Federal, non-Federal, and private actions. Table 8-5 summarizes these impacts. The impacts listed for the Proposed Action in Table 8-5 include the combined effects of the potential repository and transportation activities.

There would be essentially no difference in the design and operation of the repository for Inventory Modules 1 and 2. As described in Appendix A, the radioactive inventory for Greater-Than-Class-C waste and for Special-Performance-Assessment-Required waste is much less than that for spent nuclear fuel and high-level radioactive waste. The subsurface emplacement of the material in Inventory Module 2, in comparison with the inventory for Module 1, would not greatly increase radiological impacts to workers or the public (DIRS 104523-CRWMS M&O 1999, p. 6-44). For the surface facilities, the number of workers and the radiological exposure levels would be the same for Inventory Modules 1 and 2 (DIRS 104508-CRWMS M&O 1999, Tables 6-1, 6-2, 6-4, and 6-5). Therefore, DOE did not perform separate analyses for Modules 1 and 2 to estimate the short-term impacts. This section identifies the short-term impacts as being for Modules 1 and 2, indicating that the impacts for the two modules would not differ greatly.